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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,475	08/26/2003	Lim Su Lee	8733.311.10-US	2307

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EXAMINER

MARKOFF, ALEXANDER

ART UNIT PAPER NUMBER

1746

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,475

Applicant(s)

LEE, LIM SU

Examiner

Alexander Markoff

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 14, 16, 18, 20, 23-25 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 16, 18, 20, 23-25 and 28-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13, 14, 16, 18, 20, 23-25 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13, 14, 16, 18, 20, and 23-25 are indefinite because it is not clear wherefrom and whereto the substrate should be transferred.

Claims 23-25 are indefinite because it is not clear what manipulative steps are required. The claims recite, "using" the cleaning module, but fail to recite required manipulative steps.

Claim 20 is indefinite because it is not clear how can the water be jetted with ultrasonic waves.

Claim 31 is indefinite because it is not clear how the brushes are exposed to ultrasonic energy.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 23-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter,

which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants have amended the claims to recite cleaning of the side surfaces and the lower and upper surfaces with the same cleaning module. This concept is not recited by the original disclosure.

5. Claims 28-32 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for specific substrates disclosed, does not reasonably provide enablement for any substrate having the recited surfaces. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. The original disclosure teaches cleaning of LCD panels and provides no guidance regarding any other substrates having the properties recited by the newly submitted claims. Without such guidance an ordinary artisan would not be able to practice the invention without undue experimentation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 13, 14, 16, 18, 20, 23-25 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Moinpour et al (5,901,399) and Culkins et al (US Patent No 5,937,469) in view of Kubota et al (US Patent No 6,059,891) and Maekawa et al (US Patent NO 5,868,866).

Moinpour et al and Culkins et al teach that it was conventional to clean substrates, such semiconductor wafers, with cleaning modules applied to main surfaces and to the edges. The documents teach that it was conventional to clean these surfaces and edges with upper and lower and side rotating brushes and water sprays. See entire documents, especially Figure 3 in Moinpour et al, Figure 3C in Culkins et al and the related description.

The documents do not specifically teach application of the method for cleaning LCD substrates.

However, Kubota et al and Maekawa et al evidence that the same cleaning methods, including brushing and spraying were conventionally used to clean both wafers and LCD substrates. See at least Abstract and Figures of Maekawa et al and column 1, lines 5-8 and column 2, lines 1-8 of Kubota et al.

It would have been obvious to an ordinary artisan at the time the invention was made to apply methods of Moinpour et al and Culkins et al on cleaning LCD substrates in order to make them cleaned with reasonable expectation of success because Kubota et al and Maekawa et al evidence that the same methods of cleaning were conventionally applied to clean wafers and LCD substrates.

As to claims requiring application of ultrasonic spray to the side of the substrates:

Kubota et al teach (column 2, lines 1-8) that ultrasonic spraying, brushes and jet spraying are conventionally used for the same purpose and can be used one instead of another.

It would have been obvious to an ordinary artisan at the time the invention was to provide in the methods of Moinpour et al and Culkins et al in addition or instead of one of the jet spraying means or one of the plurality of side brushes an ultrasonic spraying means in order to enhance the cleaning.

Response to Arguments

9. Applicant's arguments filed 9/20/04 have been fully considered but they are not persuasive.

The applicants argue that the cited prior art does not teach or suggest cleaning of side surfaces with DI jet and brushes extending along the side surface.

This is not persuasive. In contrast to the applicants statement Moinpour et al and Culkins et al teach that it was conventional to clean side surfaces with side rotating brushes and water sprays. See at least Figure 3 in Moinpour et al, Figure 3C in Culkins et al and the related description.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER